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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/118,080	07/17/98	FARNWORTH	W M4065.067/P0

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EXAMINER
CHAMBLISS, A

ART UNIT PAPER NUMBER
2814

DATE MAILED: 10/12/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/118,080

Applicant(s)

FARNWORTH, WARREN M.

Examiner

Alonzo Chambliss

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2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 19-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 31-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 1998 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 1-18 and 31-33 in Paper No. 4 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 19-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 25, 27, 29, 51, 53, 55. Correction is required.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: " LEAD OVER CHIP SEMICONDUCTOR DEVICES WITH A BALL GRID ARRAYS".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1-18 and 31-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Heo et al. (U.S. 5,858,815).

With respect to Claims 1, 13, and 31, Heo discloses a semiconductor chip 11, a dielectric layer 21 (i.e. a non-conductive film), an electrically conductive leads 26 on the dielectric layer 21, and a low temperature curing adhesive material between the semiconductor chip 11 and the dielectric layer 21 (see Fig. 4B). The adhesive material has a low temperature since it comprises an epoxy adhesive (see col. 5 lines 18-20). It is well known in the semiconductor industry that epoxy adhesive have anisotropically conductive characteristics (see Tsukagoshi et al. U.S. 5,001,542 col. 3 lines 32-35 and col. 6 lines 18-35). With respect to Claims 2 and 14, the dielectric layer 21 is made of polyimide (see col. 5 lines 11 and 12). With respect to Claims 3 and 15, it is well known in the semiconductor industry that benzocyclobutene and polyimide are low K dielectric materials and can be substitute for one another (see Chang et al. U.S. 5,559,055 col. 4 lines 55-67, col. 6 lines 66 and 67, and col. 7 lines 1-3). With respect to Claim 4, bond wires 40 connect the semiconductor chip 11 to the electrically conductive leads 26 (see Fig. 4B). With respect to Claims 5, 17, 18, and 32, a resin material 50 encapsulates the

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bond wires 40 (see col. 6 lines 60-64; Fig. 6B). The slot-shaped opening 23 is defined in the dielectric layer 21, wherein the bond wires 40 and the resin material 50 are located in the opening 23. With respect to Claims 7, 12, and 33, a ball grid array 60 is on the leads 26 (see Fig. 4B). With respect to Claim 8, integrated circuits 11 are formed in the semiconductor material. The tape 26 has openings 23 aligned with the integrated circuits 11, wherein bond wires 40 extend through the openings 23 are electrically connected to the integrated circuits 11. The adhesive material 30 between the tape 21 and the integrated circuits 11 (see Fig. 4B). With respect to Claims 9 and 16, the tape 21 includes a dielectric layer (i.e. polyimide) and electrically conductive leads 26, wherein the leads 26 are on the dielectric layer. With respect to Claim 10, the epoxy adhesive material 21 would cure at room temperature based on the epoxy adhesive composition (see col. 5 lines 18-20). With respect to Claim 11, the glob top encapsulant material 50 is in the opening 23 (see Fig. 6B).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is cited primarily to show the product of the instant invention.


Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956.

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AC

AC/October 7, 2000


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